Appl. No. 09/960,029
Amdt. Dated 11/14/2005
Reply to Office Action of August 12, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A method of recording a ~~digital~~ digitized analog voice signal sampled at a first rate and an analog signal, comprising:
sampling said analog signal at a second rate different from the first rate to form a first set of discrete analog samples;
storing said first set of discrete analog samples into a first set of respective cells of a memory array;
converting said ~~digital~~ digitized analog voice signal into a continuous-time analog signal;
sampling said continuous-time analog signal at the second rate to form a second set of discrete analog samples; and
storing said second set of discrete analog samples into a second set of respective cells of said memory array.

2.   (Currently Amended) The method of claim 1, wherein converting said ~~digital~~ digitized analog voice signal into a continuous-time analog signal comprises:
generating a pulse-width modulated signal whose duty cycle depends on respective sample levels of said ~~digital~~ digitized analog voice signal; and
filtering said pulse-width modulated signal to form said continuous-time analog signal.

3.   (Currently Amended) The method of claim 2, wherein converting said ~~digital~~ digitized analog voice signal into a continuous-time analog signal further comprises reducing a sampling resolution of said ~~digital~~ digitized analog voice signal prior to generating said pulse-width modulated signal.

4.   (Currently Amended) The method of claim 1, further comprising decompressing said ~~digital~~ digitized analog voice signal prior to converting said ~~digital~~ digitized analog voice signal into a continuous-time analog signal.

5.   (Currently Amended) A method of generating a ~~digital~~ digitized analog voice signal and an analog signal, comprising:
retrieving a first set of discrete analog samples from a memory array;
filtering said first set of discrete analog samples to generate said analog signal;
retrieving a second set of discrete analog samples taken at the first rate from said memory array;
filtering said second set of discrete analog samples to generate a continuous-time analog signal; and

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converting said continuous-time analog signal into said ~~digital~~digitized analog voice
signal at a second rate different from the first rate.

6.   (Currently Amended) The method of claim 5, wherein converting said
continuous-time analog signal into said ~~digital~~digitized analog voice signal comprises:
        generating discrete samples of said continuous-time analog signal; and
        generating a pulse-width modulated signal whose duty cycle respectively depends on the
amplitude of said discrete samples of said continuous-time analog signal; and
        digitizing the pulse-width modulated signal.

7.   (Original) The method of claim 6, wherein generating discrete samples of said
continuous-time analog signal comprises generating said discrete samples that comprises an
average voltage of said continuous-time analog signal between respective samples.

8.   (Currently Amended) The method of claim 5, further comprising increasing a
sampling resolution of said ~~digital~~digitized analog voice signal.

9.   (Currently Amended) The method of claim 5, further comprising compressing
said ~~digital~~digitized analog voice signal.

10.   (Currently Amended) A method of recording a ~~digital~~digitized analog voice
signal sampled at a first rate, comprising:
        converting said ~~digital~~digitized analog voice signal into a continuous-time analog signal;
        sampling said continuous-time analog signal at a second rate different from the first rate
to form a plurality of discrete analog samples; and
        storing said plurality of discrete analog samples into respective cells of a memory array.

11.   (Currently Amended) The method of claim 10, wherein converting said
~~digital~~digitized analog voice signal into a continuous-time analog signal comprises:
        generating a pulse-width modulated signal whose duty cycle depends on respective
sample levels of said ~~digital~~digitized analog voice signal; and
        filtering said pulse-width modulated signal to form said continuous-time analog signal.

12.   (Currently Amended) The method of claim 11, wherein converting said
~~digital~~digitized analog voice signal into a continuous-time analog signal further comprises
reducing a sampling resolution of said ~~digital~~digitized analog voice signal prior to generating
said pulse-width modulated signal.

13.   (Currently Amended) The method of claim 11, further comprising decompressing
said ~~digital~~digitized analog voice signal prior to converting said ~~digital~~digitized analog voice
signal into a continuous-time analog signal.

14.   (Currently Amended) A method of generating a ~~digital~~ digitized analog voice signal, comprising:

retrieving a plurality of discrete analog samples from a memory array, the analog samples representing samples of an analog voice signal taken at a first rate;

generating a continuous-time analog signal from said plurality of said discrete analog samples; and

converting said continuous-time analog signal into said ~~digital~~ digitized analog voice signal by sampling the continuous-time analog signal at a second rate different from the first rate.

15.   (Currently Amended) The method of claim 14, wherein converting said continuous-time analog signal into said ~~digital~~ digitized analog voice signal comprises:

generating discrete samples of said continuous-time analog signal; and

generating a pulse-width modulated signal whose duty cycle respectively depends on the amplitude of said discrete samples of said continuous-time analog signal.

16.   (Original) The method of claim 15, wherein generating discrete samples of said continuous-time analog signal comprises generating said discrete samples that comprises an average voltage of said continuous-time analog signal between respective samples.

17.   (Currently Amended) The method of claim 14, further comprising increasing a sampling resolution of said ~~digital~~ digitized analog voice signal.

18.   (Currently Amended) The method of claim 14, further comprising compressing said ~~digital~~ digitized analog voice signal.

19.   (Currently Amended) An analog/digital recording system, comprising:

a memory array;

a converter to convert a ~~digital~~ digitized analog voice signal sampled at a first rate into a continuous-time analog signal; and

a programming device to generate a first set of discrete analog samples of said continuous-time analog signal at a second rate different from the first rate and to store said first set of discrete analog samples into said memory array, and to generate a second set of discrete analog samples from an input analog signal at a second rate and to store said second set of discrete analog samples into said memory array.

20.   (Currently Amended) The analog/digital recording system of claim 19, wherein said converter comprises:

a digital demodulator to generate a pulse-width modulated signal whose duty cycle depends on respective sample levels of said ~~digital~~ digitized analog voice signal; and

a filter to filter said pulse-width modulated signal to form said continuous-time analog signal.

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21.   (Currently Amended) The analog/digital recording system of claim 20, wherein said converter further comprises a digital smoothing interpolation filter to reduce a sampling resolution of said ~~digital~~digitized analog voice signal.

22.   (Currently Amended) The analog/digital recording system of claim 19, further comprising an expander to decompress said ~~digital~~digitized analog voice signal prior to converting said ~~digital~~digitized analog voice signal into a continuous-time analog signal.

23.   (Currently Amended) An analog/digital playback system, comprising:
        a memory array to store first and second sets of analog samples representing samples of first and second analog signals taken at a first rate;
        a reading device to retrieve from the memory array said first and second sets of analog samples and to generate first and second continuous-time analog signals respectively from said first and second sets of analog samples; and
        a converter to convert said first continuous-time analog signal into a ~~digital~~digitized analog voice signal samples of said first continuous-time analog signal taken at a second rate different from the first rate.

24.   (Currently Amended) The analog/digital playback system of claim ~~24~~23, wherein said converter comprises:
        a switch capacitor amplifier to generate discrete samples of said continuous-time analog signal; and
        an analog modulator to generate a pulse-width modulated signal whose duty cycle depends on the amplitude of respective discrete samples of said continuous-time analog signal.

25.   (Currently Amended) The analog/digital playback system of claim ~~24~~23, further comprising a digital anti-aliasing decimation filter to increase a sampling resolution of said ~~digital~~digitized analog voice signal.

26.   (Currently Amended) The analog/digital playback system of claim 23, further comprising a compressor to compress said ~~digital~~digitized analog voice signal.

27.   (Currently Amended) A ~~digital~~digitized analog voice recording system, comprising:
        a memory array;
        a converter to convert a ~~digital~~digitized analog voice signal, formed by samples of an analog voice signal taken at a first rate, into a continuous-time analog signal; and
        a programming device to generate discrete analog samples of said continuous-time analog signal at a second rate different from said rate and to store said discrete analog samples into said memory array.

28.   (Currently Amended) The analog/digital recording system of claim 27, wherein said converter comprises:

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a digital demodulator to generate a pulse-width modulated signal whose duty cycle depends on respective sample levels of said ~~digital~~ digitized analog voice signal; and
a filter to filter said pulse-width modulated signal to form said continuous-time analog signal.

29. (Currently Amended) The analog/digital recording system of claim 28, wherein said converter further comprises a digital smoothing interpolation filter to reduce a sampling resolution of said ~~digital~~ digitized analog voice signal.

30. (Currently Amended) The analog/digital recording system of claim 27, further comprising an expander to decompress said ~~digital~~ digitized analog voice signal prior to converting said ~~digital~~ digitized analog voice signal into a continuous-time analog signal.

31. (Currently Amended) A digital playback system, comprising:
a memory array to store a plurality of analog samples taken at a first rate;
a reading device to retrieve said plurality of analog samples and to generate a continuous-time analog signal from said plurality of analog samples; and
a converter to convert said continuous-time analog signal into a ~~digital~~ digitized analog voice signal at a second rate different from the first rate.

32. (Original) The analog/digital playback system of claim 31, wherein said converter comprises:
a switch capacitor amplifier to generate discrete samples of said continuous-time analog signal; and
an analog modulator to generate a pulse-width modulated signal whose duty cycle depends on the amplitude of respective discrete samples of said continuous-time analog signal.

33. (Currently Amended) The analog/digital playback system of claim 31, further comprising a digital anti-aliasing decimation filter to increase a sampling resolution of said ~~digital~~ digitized analog voice signal.

34. (Currently Amended) The analog/digital playback system of claim 31, further comprising a compressor to compress said ~~digital~~ digitized analog voice signal.

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